WHAT IS CLAIMED IS:

1. A method for unifying medium access control (MAC) protocols comprising:

grouping MAC nodes having ready packets according to preset parameters to produce a grouping result; and

transmitting packets of the MAC nodes, including unsuccessful packets from unsuccessful MAC nodes or new arrival packets from other MAC nodes, over a physical multi-access medium according to the grouping result and the preset parameters.

2. The method as claimed in claim 1, wherein the preset parameters comprise slot time, access method, completeness, memoryless after lost, report grouping result, group process scheme, type of collision anticipation tree expansion (CATE) and type of collision resolution tree expansion (CRTE).

3. The method as claimed in claim 2, wherein the step of grouping the MAC nodes further comprises:

designating nodes having new arrival packets during previous cycle as deferred nodes (DN) when the parameter "access method" is "blocked".

4. The method as claimed in claim 3, wherein, when the parameter "memoryless after lost" is positive, the step of grouping the MAC nodes further comprises:

calling a CATE routine to split nodes in DN into different groups;

calling a CRTE routine to split unmarked nodes in collided nodes (CN) into different groups; and

associating marked nodes in CN to group numbers that are g-level higher than their previous group numbers.

5. The method as claimed in claim 3, wherein, when the parameter "memoryless after lost" is negative, the step of grouping the MAC nodes further comprises :

calling a CATE routine to split unmarked nodes in DN into different groups;

associating marked nodes in DN to group numbers that are *g*-level higher than their previous group;

calling a CRTE routine to split unmarked nodes in collided nodes (CN) into different groups; and

associating marked nodes in CN to group numbers that are *g*-level higher than their previous group numbers.

6. The method as claimed in claim 4 or 5, wherein the step of grouping the MAC nodes further comprises:

reporting the grouping results to a control center when the parameter "report grouping result" is positive.

7. The method as claimed in claim 2, wherein the step of transmitting the packets of the MAC nodes further comprises:

designating nodes with new arrival packets during processing group #(g-1) to a TX(g) when the parameter "access method" is "free"; and

designating nodes in group #g to the TX(g);

wherein the TX(g) refers to nodes being processed via a *g*th channel.

8. The method as claimed in claim 7, wherein the channel is a time slot in a time division multiple access (TDMA) system, a carrier frequency in a frequency division multiple access (FDMA) system, a code channel in a code division multiple access (CDMA) system, or an antenna when antenna diversity is employed.

9. The method as claimed in claim 7, wherein the step of transmitting the packets of the MAC nodes further comprises:

executing a group processing (GP) routine to process the nodes in a group #(g) according to the parameter "group processing scheme";

wherein the GP routine refers to a routine of transmitting ready packets of the nodes in the

group #(g).

10. The method as claimed in claim 9, wherein the GP routine is a 2-way handshaking, 4-way handshaking or polling scheme.

11. The method as claimed in claim 9, wherein the step of transmitting the packets of the MAC nodes further comprises:

processing a group #(g+1) when there is no packet being transmitted and g+1 isn't larger than a preset value G.

12. The method as claimed in claim 9, wherein the step of transmitting the packets of the MAC nodes further comprises:

starting a new cycle when there is no packet being transmitted and g+1 is larger than a preset value G.

13. The method as claimed in claim 9, wherein the step of transmitting the packets of the MAC nodes further comprises:

designating nodes in a group #(g+1) to group #(g+t) as DN when a packet is transmitted, the parameter "access method" is "free" and a CATE routine is applied;

wherein the variable t refers to a packet transmitting duration.

14. The method as claimed in claim 9 or 13 , wherein the step of transmitting the packets of the MAC nodes further comprises:

removing a successfully transmitted packet from a buffer of a successful node when the transmission is successful.

15. The method as claimed in claim 9 or 13, wherein the step of transmitting the packets of the MAC nodes comprises:

designating collided nodes as CN when the transmission is not successful.

16. The method as claimed in claim 14, wherein the step of transmitting the packets of the MAC nodes further comprises:

marking losers in CN when the parameter "completeness" is negative and "memoryless after lost" is positive;

wherein the losers in CN refer to nodes in CN that fail to transmit.

17. The method as claimed in claim 14, wherein the step of transmitting the packets of the MAC nodes comprises:

marking losers in CN or DN when the parameter "completeness" and "memoryless after lost" are both negative;

wherein the losers in CN or DN refer to nodes in CN or DN that fail to transmit.

18. The method as claimed in claim 15, wherein the step of transmitting the packets of the MAC nodes further comprises:

marking losers in CN when the parameter "completeness" is negative and "memoryless after lost" is positive;

wherein the losers in CN refer to nodes in CN that fail to transmit.

19. The method as claimed in claim 15, wherein the step of transmitting the packets of the MAC nodes comprises:

marking losers in CN or DN when the parameter "completeness" and "memoryless after lost" are both negative;

wherein the losers in CN or DN refer to nodes in CN or DN that fail to transmit.

20. An apparatus for unifying MAC protocols comprising:

a unified MAC processor;

a memory having a unified MAC program; and

a transmitter/receiver circuit;

wherein the unified MAC program is used to control the operation of the unified MAC processor and the unified MAC processor operates as a specific MAC protocol after the unified MAC program is configured by a specific set of parameters; thereby, the apparatus

transmitting its packet via the transmitter/receiver circuit thereon in accordance with the configured MAC protocol.

21. The apparatus claimed in the claim 20, wherein the parameters comprise slot time, access method, completeness, memoryless after lost, report grouping result, group process scheme, type of CATE and type of CRTE.

22. The apparatus claimed in the claim 20, wherein the unified MAC program comprises a CATE routine for splitting nodes in DN into different groups so as to avoid collisions.

23. The apparatus claimed in the claim 20, wherein the unified MAC program comprises a CRTE routine for splitting nodes in CN into different groups so as to resolve collisions.

24. The apparatus claimed in the claim 20, wherein the memory further has a packet buffer for saving new arrival packets from upper layer protocol or packets received from physical layer.

25. A method for setting parameters of a unified MAC node, comprising:

observing a protocol used between MAC nodes and formats of packets received from a physical multi-access medium;

recognizing a type of CATE or CRTE of the protocol used between the MAC nodes by using observed results;

selecting a group processing approach by using the observed results;

determining conditions to renew a cycle by using the observed results; and

defining the parameters by using the observed results to configure the unified MAC nod.

26. The method as claimed in claim 25, wherein the group processing approach is 2-way handshaking, 4-way handshaking or polling.

27. The method as claimed in claim 25, wherein the parameters comprise slot time, access method, completeness, memoryless after lost, report grouping result, group process scheme,

CATE and CRTE.